

AMENDMENT

In the Specification:

Please amend page 1, paragraph 3 to read as follows:

This application is also related to co-owned, concurrently filed U.S. Serial No. [10/---,---] 10/055,070 entitled "Apparatus and Methods for Determining Velocity of Oil in a Flow Stream" (~~Docket #60.1442~~) and U.S. Serial No. [10/---,---] 10/055,654 (now issued as U.S. Patent #6,704,109) entitled "Downhole Fluorescence Detection Apparatus" (~~Docket 21.0918~~) both of which are hereby incorporated by reference herein in their entireties.

Please amend page 6, last paragraph to read as follows:

According to the preferred embodiment of the invention, the probes 30 are of compact size, usually just 0.2 to 0.4 mm in diameter (e.g., a diameter of .385 mm being shown between arrows in Figs. 2a, 3a, 4a, and 4b). The small size results in minimal disturbance to the sensing flow and the capability of detecting smaller oil drops or gas bubbles. Probe sizes smaller than .2 mm are not preferred because they often result in inadequate signals. The preferred probe material is sapphire because of its superior mechanical strength and suitable index of refraction. In addition, sapphire is generally resistant to abrasive materials found in wellbores. However, sapphire, like certain color glass filters can fluoresce. Since fluorescence of the probe could add to background noise and reduces the signal-to-noise ratio, it is desirable to reduce the fluorescence of the sapphire by annealing the probe in a hydrogen atmosphere at a temperature above 700°C.

Please amend page 9, first paragraph to read as follows:

Similarly, a second modified conical probe tip 60b is seen in Fig. 3c. The probe tip 60b is similar to probe tip 60 of Fig. 3a except that the base 66 of the probe tip has been tapered down to a diameter of .28 mm over a distance of about .6mm by an angle of approximately five degrees relative to the probe axis. It will be appreciated, that if desired, probe tip 60b can also be modified to have point 62 flattened as in the modification of Fig. 3b.

Please amend page 9, third paragraph to read as follows:

A modification to the substantially spherical probe of Fig. 4a is seen in Fig. 4b where base 76 of the probe tip 70a has been tapered down to a diameter of .28 mm over a distance of about 1mm by an angle of approximately three degrees relative to the probe axis.